

WHAT IS CLAIMED IS:

1           1.     A method for processing Input/Output (I/O) requests to a storage network  
2 including at least one storage device and at least two adaptors, wherein each adaptor is  
3 capable of communicating I/O requests to the at least one storage device, comprising:  
4           detecting an error in a system including a first adaptor, wherein the first adaptor is  
5 capable of communicating on the storage network after the error is detected;  
6           in response to detecting the error, initiating a monitoring state to monitor I/O  
7 requests transmitted through a second adaptor;  
8           in response to receiving an I/O request, starting an I/O delay timer that is less than  
9 a system timeout period, wherein an error recovery procedure in the system including the  
10 first adaptor would be initiated after the system timeout period has expired; and  
11           sending a reset request to the first adaptor in response to detecting an expiration  
12 of one started I/O delay timer.

1           2.     The method of claim 1, wherein the detected error indicates that the first  
2 adaptor is unable to communicate to the system housing the first adaptor.

1           3.     The method of claim 1, wherein I/O requests continue to be processed  
2 through the second adaptor until the reset request is sent.

1           4.     The method of claim 1, further comprising:  
2           starting a monitoring timer equivalent to the system timeout period after detecting  
3 the error at the first adaptor; and  
4           terminating the monitoring state and any pending I/O delay timers after the  
5 monitoring timer expires.

1           5.     The method of claim 1, wherein sending the reset request further  
2 comprises:

3           issuing a get identifier request to obtain an identifier of the first adaptor, wherein  
4   the reset request is sent to the obtained identifier if the identifier is returned in response  
5   to the get identifier request.

1           6.     The method of claim 5, further comprising:  
2           terminating the monitoring state and any pending I/O delay timers after sending  
3   the reset request.

1           7.     The method of claim 5, further comprising:  
2           issuing another get identifier request to the first adaptor if a previous get identifier  
3   request failed.

1           8.     The method of claim 5, further comprising:  
2           starting a monitoring timer equivalent to the adaptor timeout period after  
3   detecting the error at the first adaptor;  
4           beginning a process to issue an additional get identifier request to the first adaptor  
5   if any previous get identifier request failed; and  
6           terminating the monitoring state, any pending I/O delay timers, and the process to  
7   issue additional get identifier requests after an expiration of the monitoring timer.

1           9.     The method of claim 1, wherein the steps of initiating a monitoring state,  
2   starting the I/O delay timer and sending the reset request are performed by a device  
3   driver executing in an operating system.

1           10.    The method of claim 9, wherein the system including the first adaptor is a  
2   first system, wherein the device driver and the operating system are in a second system.

1           11.    The method of claim 9, wherein the second adaptor is within the system  
2   including the first adaptor, and wherein the reset causes a reset of the first adaptor.

1           12.     The method of claim 11, wherein the reset of the first adaptor does not  
2     effect the second adaptor.

1           13.     The method of claim 1, wherein the storage network on which the  
2     adaptors and storage devices communicate comprises a loop topology.

1           14.     The method of claim 13, wherein the adaptors and storage devices  
2     communicate using the Serial Storage Architecture (SSA) protocol.

1           15.     The method of claim 1, wherein the detected error indicates an error  
2     within the first adaptor.

1           16.     The method of claim 1, wherein the reset causes a reset of the first adaptor  
2     and not other components within the system including the first adaptor.

1           17.     The method of claim 1, wherein the reset causes a power cycle of the  
2     system including the first adaptor.

1           18.     A system for processing Input/Output (I/O) requests to a storage network  
2     including at least one storage device and a system including a first adaptor capable of  
3     communicating I/O requests to at least one storage device, wherein the system including  
4     the first adaptor initiates an error recovery procedure after a system timeout period has  
5     expired, comprising:  
6           a second adaptor capable of communicating on the storage network;  
7           means for detecting an error in the system including the first adaptor, wherein the  
8     first adaptor is capable of communicating on the storage network after the error is  
9     detected;  
10          means for initiating a monitoring state to monitor I/O requests transmitted  
11     through a second adaptor in response to detecting the error;

12 means for starting an I/O delay timer that is less than a system timeout period in  
13 response to receiving an I/O request; and

14 means for sending a reset request to the first adaptor in response to detecting an  
15 expiration of one started I/O delay timer.

1 19. The system of claim 18, wherein the detected error indicates that the first  
2 adaptor is unable to communicate to the system housing the first adaptor.

1 20. The system of claim 18, wherein I/O requests continue to be processed  
2 through the second adaptor until the reset request is sent.

1 21. The system of claim 18, further comprising:  
2 means for starting a monitoring timer equivalent to the system timeout period  
3 after detecting the error at the first adaptor; and  
4 means for terminating the monitoring state and any pending I/O delay timers after  
5 the monitoring timer expires.

1 22. The system of claim 18, wherein the means for sending the reset request  
2 further performs:  
3 issuing a get identifier request to obtain an identifier of the first adaptor, wherein  
4 the reset request is sent to the obtained identifier if the identifier is returned in response  
5 to the get identifier request.

1 23. The system of claim 22, further comprising:  
2 means for terminating the monitoring state and any pending I/O delay timers after  
3 sending the reset request.

1        24.    The system of claim 22, further comprising:  
2        means for issuing another get identifier request to the first adaptor if a previous  
3        get identifier request failed.

1        25.    The system of claim 22, further comprising:  
2        means for starting a monitoring timer equivalent to the adaptor timeout period  
3        after detecting the error at the first adaptor;  
4        means for beginning a process to issue an additional get identifier request to the  
5        first adaptor if any previous get identifier request failed; and  
6        means for terminating the monitoring state, any pending I/O delay timers, and the  
7        process to issue additional get identifier requests after an expiration of the monitoring  
8        timer.

1        26.    The system of claim 18, further comprising:  
2        an operating system; and  
3        a device driver executing in the operating system, wherein the steps of initiating a  
4        monitoring state, starting the I/O delay timer and sending the reset request are performed  
5        by the device driver.

1        27.    The system of claim 26, wherein the system including the first adaptor is a  
2        separate system accessible over the storage network.

1        28.    The system of claim 26, wherein the second adaptor is within the system  
2        including the first adaptor, and wherein the reset causes a reset of the first adaptor.

1        29.    The system of claim 28, wherein the reset of the first adaptor does not  
2        effect the second adaptor.

1           30.    The system of claim 18, wherein the storage network on which the  
2   adaptors and storage devices communicate comprises a loop topology.

1           31.    The system of claim 30, wherein the adaptors and storage devices  
2   communicate using the Serial Storage Architecture (SSA) protocol.

1           32.    The system of claim 18, wherein the detected error indicates an error  
2   within the first adaptor.

1           33.    The system of claim 18, wherein the reset causes a reset of the first  
2   adaptor and not other components within the system including the first adaptor.

1           34.    The system of claim 18, wherein the reset causes a power cycle of the  
2   system including the first adaptor.

1           35.    An article of manufacture including code for processing Input/Output  
2   (I/O) requests to a storage network including at least one storage device and at least two  
3   adaptors, wherein each adaptor is capable of communicating I/O requests to the at least  
4   one storage device, wherein the code is capable of causing operations to be performed  
5   comprising:  
6           detecting an error in a system including a first adaptor, wherein the first adaptor is  
7   capable of communicating on the storage network after the error is detected;  
8           in response to detecting the error, initiating a monitoring state to monitor I/O  
9   requests transmitted through a second adaptor;  
10          in response to receiving an I/O request, starting an I/O delay timer that is less than  
11   a system timeout period, wherein an error recovery procedure in the system including the  
12   first adaptor would be initiated after the system timeout period has expired; and  
13          sending a reset request to the first adaptor in response to detecting an expiration  
14   of one started I/O delay timer.

1           36.     The system of claim 35, wherein the detected error indicates that the first  
2     adaptor is unable to communicate to the system housing the first adaptor.

1           37.     The system of claim 35, wherein I/O requests continue to be processed  
2     through the second adaptor until the reset request is sent.

1           38.     The system of claim 35, further comprising:  
2             starting a monitoring timer equivalent to the system timeout period after detecting  
3     the error at the first adaptor; and  
4             terminating the monitoring state and any pending I/O delay timers after the  
5     monitoring timer expires.

1           39.     The system of claim 35, wherein sending the reset request further  
2     comprises:  
3             issuing a get identifier request to obtain an identifier of the first adaptor, wherein  
4     the reset request is sent to the obtained identifier if the identifier is returned in response  
5     to the get identifier request.

1           40.     The system of claim 39, further comprising:  
2             terminating the monitoring state and any pending I/O delay timers after sending  
3     the reset request.

1           41.     The system of claim 39, further comprising:  
2             issuing another get identifier request to the first adaptor if a previous get identifier  
3     request failed.

1           42.     The system of claim 39, further comprising:  
2             starting a monitoring timer equivalent to the adaptor timeout period after  
3     detecting the error at the first adaptor;

4 beginning a process to issue an additional get identifier request to the first adaptor  
5 if any previous get identifier request failed; and  
6 terminating the monitoring state, any pending I/O delay timers, and the process to  
7 issue additional get identifier requests after an expiration of the monitoring timer.

1 43. The system of claim 35, wherein the steps of initiating a monitoring state,  
2 starting the I/O delay timer and sending the reset request are performed by a device  
3 driver executing in an operating system.

1 44. The system of claim 43, wherein the system including the first adaptor is a  
2 first system, wherein the device driver and the operating system are in a second system.

1 45. The system of claim 43, wherein the second adaptor is within the system  
2 including the first adaptor, and wherein the reset causes a reset of the first adaptor.

1 46. The system of claim 45, wherein the reset of the first adaptor does not  
2 effect the second adaptor.

1 47. The system of claim 35, wherein the storage network on which the  
2 adaptors and storage devices communicate comprises a loop topology.

1 48. The system of claim 47, wherein the adaptors and storage devices  
2 communicate using the Serial Storage Architecture (SSA) protocol.

1 49. The system of claim 35, wherein the detected error indicates an error  
2 within the first adaptor.

1 50. The system of claim 35, wherein the reset causes a reset of the first  
2 adaptor and not other components within the system including the first adaptor.



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